

REMARKS/ARGUMENTS

No new matter has been added.

The Office Action mailed January 4, 2008, has been received and reviewed. Claims 1 through 9 are currently pending in the application. Claims 1 through 9 stand rejected. Applicant has amended no claims, and respectfully requests reconsideration of the application as presented herein.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 4,547,836 to Anthony, and Further in View of U.S. Patent No. 6,190,834 to Narahara et al.

Claims 1 through 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anthony (U.S. Patent No. 4,547,836) in view of Narahara et al. (U.S. Patent No. 6,190,834). Applicant respectfully traverses this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, the Examiner must determine whether there is “**an apparent reason to combine** the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Further, rejections on obviousness grounds “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id* at 1741, quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

Furthermore, a *prima facie* case of obviousness may be rebutted by showing that the art,

in any material respect, teaches away from the claimed invention. In re Geisler, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). Furthermore, it “is improper to combine references where the references teach away from their combination.” M.P.E.P. §2145(X)(D)(2) (citing In re Grasselli, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983)).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1 through 7 and 9 are improper because (1) the references do not teach or suggest all of Applicant’s claim limitations, (2) there is no apparent reason to combine the references, and (3) the references teach away from their combination.

All Claims Limitations Not Taught or Suggested

Applicant’s invention as presently claimed recites, in part, “*an insulating layer* from said first side *to said second side of said semiconductor substrate* on said inner surface in said hole”. The Office Action concedes “*Anthony fails to teach* Applicant’s amended claim limitation requiring the additional step of *forming an insulating layer* on the inner surface of the hole and then plating over the insulating layer.” (Office Action, p. 3; emphasis added). Clearly then Anthony does not teach Applicant’s claim limitation. The Office Action then further concedes “*the insulating film taught by Narahara does not extend* from one side of the substrate *to the other.*” (Office Action, p. 6; emphasis added).

Therefore, since neither Anthony nor Narahara, either individually or in any proper combination teach or suggest each and every claim limitation, these references cannot render Applicant’s claimed invention obvious under 35 U.S.C. §103. Accordingly, the rejection is improper and should be withdrawn.

No Apparent Reason to Combine

Anthony teaches of an already insulative substrate (e.g., glass) including a hole therethrough. An electrically conductive metal layer is then formed directly through the hole to the already insulative substrate. Since Anthony’s substrate and the hole therethrough is already very highly insulative, the further application of redundant insulation would not be an apparent reason to combine redundant insulation over an existing insulative substrate as proposed by the

Office Action. The Office Action proposes the reason for combining to be “forming an insulating layer inside the hole in order *to improve adhesion* to the subsequently plated metal layer”. (Office Action, p. 3; emphasis added). However, Anthony is very clear that a thin film of electrically conductive lead (Fig. 2, element 15) is readily directly applied to hole.

While the Office Action has asserted a reason to combine the references, a *prima facie* case requires that the reason be “apparent” and accompanied by “articulated reasoning with some rational underpinning,” neither of which are present in the alleged combination. Therefore, these references cannot render Applicant’s claimed invention obvious under 35 U.S.C. §103. Accordingly, the rejection is improper and should be withdrawn.

References Teach Away from Their Combination

The Office Action, in an attempt to allege a reason from combining the references, relies on “modify[ing] Anthony to include *forming an insulating layer inside* the hole in order *to improve adhesion* to the subsequently plated metal layer as taught by Narahara”. (Office Action, p. 3; emphasis added). However, Anthony clearly teaches that any improved adhesion of subsequently plated layer is brought about by forming an *electrically conductive layer inside* the hole. Specifically, Anthony teaches, “[a]s an alternative to using lead as the metal of layer 17, *an initial thin metal layer* … may be introduce into bore 12 … [*t*]hereafter, deposition of layer 18 by *electroplating* is necessary in order to obtain the necessary thickness of metal over the inside surface of the hole.” (Anthony, col. 6, lines 13-22; emphasis added).

Clearly, Anthony teaches any plating process preferably or at least adequately adheres (i.e., “adhesion”) to an *electrically conductive metal layer* as opposed to the alleged introduction of an “insulating layer”. Therefore, Anthony teaches away from the alleged combination of an insulating layer as a foundation for a plating process as alleged in the Office Action. Furthermore, the *prima facie* case for obviousness under 35 U.S.C. §103 has been rebutted since the combined *references clearly teach away from their combination*. Accordingly, the rejection is improper and should be withdrawn.

Obviousness Rejection Based on U.S. Patent No. 4,547,836 to Anthony and U.S. Patent No. 6,190,834 to Narahara et al., and Further in View of U.S. Patent No. 5,487,218 to Bhatt et al.

Claims 6 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anthony (U.S. Patent No. 4,547,836) and Narahara et al. (U.S. Patent No. 6,190,834), as applied to the claims above, and further in view of Bhatt et al. (U.S. Patent No. 5,487,218). Applicant respectfully traverses this rejection, as hereinafter set forth.

The nonobviousness of independent claim 1 precludes a rejection of claims 6 and 8 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 1 and claims 6 and 8 which depend therefrom.

CONCLUSION

Claims 1 through 9 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



Kevin K. Johanson
Registration No. 38,506
Attorney for Applicant(s)
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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KKJ/ps:cw

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